

REMARKS

Favorable reconsideration of this application is respectfully requested in view of the claim amendments and following remarks. Claims 1 and 4 have been amended. Claims 7-13 have been added. Currently, claims 1-13 are pending in the present application of which claims 1, 7, and 11 are independent.

No new matter has been introduced by way of the claim additions and amendments, entry thereof is therefore respectfully requested.

Claims 1-5 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Mochizuki et al. (U.S. Patent Application No. 2004/0061838). Claims 1-3 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Ramachandran et al. (U.S. Patent Application No. 2004/0141157). The above rejections are respectfully traversed for at least the reasons set forth below.

Information Disclosure Statement

At the outset, the indication that the Information Disclosure Statement filed on September 8, 2003 has been considered is noted with appreciation.

Objection to the Drawings

The drawings were objected to under 37 C.F.R. § 1.84(p)(5) for allegedly not including reference character 508a in Figure 5. A replacement sheet for Figure 5 including reference character 508a is attached herein. Accordingly, the Examiner is respectfully requested to withdraw the objection to the drawing. No new matter has been added.

Claim Objection

Claims 1-5 were objected to for allegedly having an informality. Specifically, claim 1 (and dependent claims 2-5) was objected to because “the screen” in line 4 of the claim allegedly does not have an antecedent basis. Claim 1 has been amended in minor respect to comply with the Official Action’s request. The Examiner is therefore respectfully requested to withdraw the objection of claim 1 and claims 2-5 which depend there from.

Claim Rejection Under 35 U.S.C. §102

The test for determining if a reference anticipates a claim, for purposes of a rejection under 35 U.S.C. § 102, is whether the reference discloses all the elements of the claimed combination, or the mechanical equivalents thereof functioning in substantially the same way to produce substantially the same results. As noted by the Court of Appeals for the Federal Circuit in *Lindemann Maschinenfabrick GmbH v. American Hoist and Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984), in evaluating the sufficiency of an anticipation rejection under 35 U.S.C. § 102, the Court stated:

Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.

Therefore, if the cited reference does not disclose each and every element of the claimed invention, then the cited reference fails to anticipate the claimed invention and, thus, the claimed invention is distinguishable over the cited reference.

Claims 1-5 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Mochizuki et al. This rejection is respectfully traversed because the claimed invention as set

forth in amended claim 1 and the claims that depend therefrom are patentably distinguishable over Mochizuki et al.

Mochizuki et al. discloses a projector 10 that displays an image on a screen 40. The projector 10 includes an image capture portion 106 as shown in Figure 1 of Mochizuki et al. The projector display image 202, as shown in Figure 2 of Mochizuki et al., may be oblique. The image capture portion 106 compares the projector display image 202 with the entire image area 201 imaged by an image sensor 105 as shown in Figure 2. Specifically, the area not covered by the projector display image 202 is considered a bright area whereas the project display image 202 is considered a dark area. This area information is referred to as the image lightness data 114. See Paragraph 0067. This image lightness data 114 is used to identify the boundaries of the projector display image 202 and adjust the projector 10 so that the projector display image 202 is not oblique, that is, the shape of the projector display image 202 is modified to match the display surface of the screen 40. See Abstract.

According to an embodiment of the invention, a method is shown for correcting non-uniformity in luminance of an image generated by a projector and displayed obliquely on a screen having a surface. The projector has a plurality of pixels for use in generating images and each projector pixel subtends to a corresponding projected area on the screen. A camera is positioned substantially perpendicular to the surface of the screen. The camera and the projector have different optical axes relative to the surface of the screen. The projector pixel that subtends to the largest projected area on the screen is identified and a ratio between the projected area of each pixel and the largest projected area is determined. This ratio is organized into an attenuation array that is then used to modify the luminance information of

an input image to drive the projector. As a result of the modification, the image displayed on the screen is uniformly luminescent.

The Official Action alleges that Muchizuki et al. discloses “modifying luminance information of an input image received by the projector by the ratios of the attenuation array and utilizing the modified luminance information to drive the projector such that the image produced on the screen is uniform in luminance” in Figures 4 and 5 and at paragraphs [0048], [0066], and [0067]. **However, Muchizuki et al. does not teach modifying luminance information of an input image or using the modified luminance information to drive a projector.** Muchizuki et al., as discussed above, discloses modifying the shape of the displayed image. Muchizuki et al. mentions image lightness data in paragraph [0067], but fails to teach modification of the luminance information of an input image. Therefore, Muchizuki et al. fails to disclose at least this element of claim 1 of the present invention.

The allegation in the Official Action that Mochizuki et al. discloses “identifying the projector pixel that subtends to the largest projected area on the screen; determining a ratio between the projected area of each pixel and the largest projected area; and organizing the ratio determined for each pixel into an attenuation array” in Figures 4 and 5 and at paragraph [0067] is improper. In fact, Muchizuki et al. does not disclose that a ratio for each pixel is determined. As a result, Muchizuki et al., by definition, cannot teach organizing the ratio into an array. In fact, the term “array” is not mentioned at all in paragraph [0067]. Furthermore, Figure 4 of Mochizuki et al. shows a straight-line detection means 116, which is a clear indication that a matrix or array is not taught.

Accordingly, Mochizuki et al. fails to teach all of the features contained in claim 1 of the present invention, and thus, this claim is believed to be allowable. Claims 2-5 depend upon allowable claim 1 and are also allowable at least by virtue of their dependencies.

Claims 1-3 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Ramachandran et al. This rejection is respectfully traversed because the claimed invention as set forth in amended claim 1 and the claims that depend therefrom are patentably distinguishable over Ramachandran et al.

Ramachandran et al. discloses an image projection system and method used for a projection screen television. Ramachandran et al. addresses the problem of correcting distortions in the image due to properties of optical elements in the system such as mirrors and lenses. This is allegedly accomplished by modifying the image according to geometric transformations based upon surface properties of the mirrors and lenses. See paragraphs [0095] and [0096].

According to an embodiment of the invention, as discussed above, a method is shown for correcting non-uniformity in luminance of an image generated by a projector and displayed obliquely on a screen having a surface. The projector has a plurality of pixels for use in generating images and each projector pixel subtends to a corresponding projected area on the screen. A camera is positioned substantially perpendicular to the surface of the screen. The camera and the projector have different optical axes relative to the surface of the screen. The projector pixel that subtends to the largest projected area on the screen is identified and a ratio between the projected area of each pixel and the largest projected area is determined. This ratio is organized into an attenuation array that is then used to modify the luminance

information of an input image to drive the projector. As a result of the modification, the image displayed on the screen is uniformly luminescent.

Claim 1, as amended, recites “identifying, with a camera, the projector pixel that subtends to the largest projected area on the screen.” Ramachandran et al. fails to teach using a camera to identify the projector pixel that subtends to the largest projected area on the screen as recited in claim 1 of the present invention. Specifically, Ramachandran et al., as discussed above, uses a spatial transformation based upon the surfaces or mirrors and lenses used in a projection system. Ramachandran et al. also fails to disclose the use of a camera in the transformation process.

Accordingly, Ramachandran et al. fails to disclose all of the features contained in claim 1 of the present invention, and thus, this claim is believed to be allowable. Claims 2 and 3 depend upon allowable claim 1 and are also allowable at least by virtue of their dependencies.

Newly Added Claims

Claims 6-13 have been added to further define the invention. Claims 7 and 11 include elements similar to the elements in claim 1 and therefore are allowable over the prior art of record for similar reasons. Claims 8-10 depend upon claim 7 and claims 12 and 13 depend upon allowable claim 11 and are allowable at least by virtue of their dependencies.

Therefore, the Examiner is respectfully requested to allow claims 6-13.

PATENT

Atty Docket No.: 200310065-1

App Ser. No.: 10/657,527

Conclusion

In light of the foregoing, withdrawal of the rejections of record and allowance of this application are earnestly solicited.


Should the Examiner believe that a telephone conference with the undersigned would assist in resolving any issues pertaining to the allowability of the above-identified application, please contact the undersigned at the telephone number listed below. Please grant any required extensions of time and charge any fees due in connection with this request to deposit account no. 08-2025.

Respectfully submitted,

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By



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PATENT

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IN THE DRAWINGS:

The attached sheet of drawings includes changes to Figure 5. This sheet, which includes Figures 5-7, replaces the original sheet including Figures 5-7. In Figure 5, the reference numeral 508a has been added.